

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): A metal sheet with anticorrosive coating formed from an anticorrosive paint on at least one side thereof, wherein

said anticorrosive paint contains a metallic zinc powder ~~and~~ in an amount of 55 - 85 mass% of its solids;

said anticorrosive paint contains at least one kind of metal salt rust inhibitor ; in an amount of 1 - 20.3 mass% of its solids; and

said metal salt ~~being~~ is a salt of a metal which is more base than zinc.

Claim 2 (Original): The metal sheet with anticorrosive coating as defined in Claim 1, wherein the substrate is a steel sheet.

Claim 3 (Original): The metal sheet with anticorrosive coating as defined in Claim 1, wherein the coating film has a thickness ranging from 5 μm to 30 μm .

Claim 4 (Original): The metal sheet with anticorrosive coating as defined in Claim 1, wherein the metallic zinc powder has an average particle diameter ranging from 0.01 μm to 20 μm .

Claim 5 (Canceled)

Claim 6 (Original): The metal sheet with anticorrosive coating as defined in Claim 1, wherein the metal salt rust inhibitor is a fine powder having an average particle diameter no larger than 1 μm .

Claim 7 (Canceled)

Claim 8 (Original): The metal sheet with anticorrosive coating as defined in Claim 1, wherein the metal salt rust inhibitor is a phosphate.

Claim 9 (Original): The metal sheet with anticorrosive coating as defined in Claim 1, wherein the metal salt rust inhibitor is a phosphomolybdate.

Claim 10 (Original): The metal sheet with anticorrosive coating as defined in Claim 1,
wherein a phosphate coating film is interposed between the metal sheet and the coating film
of the anticorrosive paint.

Claim 11 (New): A method of making a metal sheet with anticorrosive coating, the
method comprising

coating an anticorrosive coating on a metal sheet; and

producing the metal sheet with anticorrosive coating as defined in Claim 1.

SUPPORT FOR THE AMENDMENT

This Amendment cancels Claims 5 and 7; amends Claim 1; and adds new Claim 11. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 1 is found in canceled Claims 5 and 7 and in the specification at least at page 10, Table 1, Sample Nos. 3 and 10. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-4, 6 and 8-11 will be pending in this application. Claim 1 is independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

Applicants thank the Examiner for the courtesies extended to their representative during the June 17, 2003, personal interview. Applicants thank the Examiner for the indication at the interview that the above amendments appear to overcome the prior art of record. Interview Summary dated June 17, 2003.

The present invention provides a metal sheet with an anticorrosive coating formed from an anticorrosive paint containing metallic zinc powder and at least one kind of metal salt rust inhibitor, where the metal salt is a salt of a metal that is more base than zinc.

Corrosion prevention by zinc has long been known, and metal salt rust inhibitors are also known. Specification at page 4, lines 4-6.

However, the present inventors are the first to find that a marked anticorrosive effect is produced by the *combination* of zinc powder with a metal salt inhibitor, where the metal salt is a salt of the metal which is more base than zinc. Specification at page 4, lines 6-10.

The specification at page 10, Table 1, reproduced below, illustrates the significant improvement in pitting corrosion resistance and red rust resistance achieved by coating a metal sheet with an anticorrosive paint containing the inventive combination of zinc powder (55 - 85 mass% of the paint's solids) and metal salt rust inhibitor (1 - 20.3 mass% of the paint's solids).

Table 1

Sample No.	Metal sheet	Surface prepa-ration	Zinc powder (mass%)	Metal salt rust inhibitor				Pitting corrosion resistance	Red rust resistance	Corrosion resistance after coating
				Kind	Average particle diameter (μm)	Amount used (mass%)				
1	Cold rolled steel sheet	None	65	Aluminum phosphomolybdate	0.38	5.83		A	A	B
2	Cold rolled steel sheet	None	65	Magnesium phosphate	0.37	5.72		A	A	B
3	Cold rolled steel sheet	P (0.8)	85	Magnesium phosphate	0.37	2.02		A	A	A
4	Cold rolled steel sheet	P (0.8)	65	Magnesium phosphate	0.48	6.00		A	A	A
5	Cold rolled steel sheet	P (0.9)	65	Aluminum phosphomolybdate	0.35	1.63		A	A	A
6	Cold rolled steel sheet	P (0.7)	65	Aluminum phosphomolybdate	0.46	5.66		A	A	A
7	Cold rolled steel sheet	P (0.7)	65	Magnesium phosphate plus Aluminum-phosphomolybdate	0.45 0.38	1.89 3.52		A	A	A
8	Cold rolled steel sheet	P (2.1)	80	Magnesium phosphate	0.89	10.3		A	A	A
9	Cold rolled steel sheet	P (2.7)	75	Calcium phosphate	0.65	4.53		A	A	A
10	Cold rolled steel sheet	P (0.3)	55	Aluminum phosphomolybdate	0.75	20.3		A	A	B
11	Cold rolled steel sheet	P (2.0)	65	Magnesium phosphate	0.89	30.5		B	B	A
12	Cold rolled steel sheet	P (2.7)	75	Calcium phosphate	1.35	6.52		B	B	A
13	Cold rolled steel sheet	P (2.2)	75	Calcium phosphate	2.55	5.83		B	B	B
14	Cold rolled steel sheet	P (2.2)	38	Magnesium phosphate	0.75	7.85		B	C	B
(1)	Cold rolled steel sheet	None	None	None	--	--		C	D	C
(2)	Cold rolled steel sheet	None	65	None	--	--		C	D	C
(3)	Cold rolled steel sheet	P (0.8)	65	None	--	--		C	D	C

Parentthesized sample Nos. indicate comparative samples.

In the column of surface preparation, "P" denotes phosphate coating and the parentthesized number that follows P denotes the coating weight (g/m^2).

Claims 1-5 and 7-8 are rejected under 35 U.S.C. § 103(a) over EP 0722933 A1 ("Shinohara"). In addition, Claim 6 is rejected under 35 U.S.C. § 103(a) over Shinohara and further in view of U.S. Patent No. 4,294,808 ("Wasel-Nielen"). Claim 9 is rejected under 35 U.S.C. § 103(a) over Shinohara and further in view of U.S. Patent No. 4,040,842 ("Mekishima"). Claim 10 is rejected under 35 U.S.C. § 103(a) over Shinohara and further in view of U.S. Patent No. 6,117,251 ("Rivera").

Applicants respectfully traverse these rejections because any *prima facie* case of obviousness based on the cited prior art is rebutted by the significant improvement in corrosion resistance achieved by the inventive combination of zinc powder and metal salt rust inhibitor. The cited prior art is silent about the improved corrosion resistance, in particular, pitting corrosion resistance and red rust resistance, that achieved by the present invention and illustrated in Table 1, above. Thus, the rejections under 35 U.S.C. § 103 should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER AND NEUSTADT, P.C.



Norman F. Oblon
Registration No. 24,618

Attorney of Record
Corwin P. Umbach, Ph.D.
Registration No. 40,211



22850

(703) 413-3000
(703) 413-2220 (fax)

NFO:CPU/bwt
I:\atty\Cpu\Jun03\220119us-am.wpd